Mathematical Ideas 14th edition Miller Test Bank

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Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

List the elements in the set.

1) {x | x is a whole number between 3 and 7} 1) _____
A) {3, 4, 5, 6} B) {4, 5, 6, 7} C) {4, 5, 6} D) {3, 4, 5, 6, 7}

2) {x | x is an integer between –7 and –3} 2) _____
A) {–7, –6, –5, –4, –3} B) {–6, –5, –4, –3}
C) {–6, –5, –4} D) {–7, –6, –5, –4}

3) {x | x is a negative multiple of 9} 3) _____
A) {9, 18, 27, ...} B) {–9, –18, –27, ...}
C) {–9, –81, –729, ...} D) {0, –9, –18, ...}

4) {x | x is an integer greater than –6} 4) _____
A) {–5, –4, –3, ...} B) {–5, –4, –3, –2} C) {–7, –8, –9} D) {–7, –8, –9, ...}

5) The set of all whole numbers greater than 2 and less than 6 5) _____
A) {3, 4, 5, 6} B) {2, 3, 4, 5, 6} C) {2, 3, 4, 5} D) {3, 4, 5}

6) {x | x is a counting number multiple of 4} 6) _____
A) {0, 4, 8, 12, ...} B) ∅ C) {4, 8, 12, ...} D) {8, 12, 16, ...}

7) {x | x is a counting number less than –1} 7) _____
A) {–2, –3, –4, ...} B) {0, 1, 2, ...} C) {..., –4, –3, –2} D) ∅

8) The set of all positive integer powers of 3. 8) _____
A) {3, 9, 27, 81, 243, ...} B) {1, 3, 9, 27, 81, 243, ...}
C) {3, 6, 9, 12, 15, ...} D) {1, 8, 27, 64, 125, ...}

9) { x | x is an even integer smaller than 8} 9) _____
A) {..., –6, –4, –2, 2, 4, 6} B) {2, 4, 6}
C) {0, 2, 4, 6} D) {..., –6, –4, –2, 0, 2, 4, 6}

10) The set of the days of the week 10) _____
A) {Saturday, Sunday}
B) {Tuesday, Thursday}
C) {Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Sunday}
D) {Friday, Monday, Saturday, Sunday, Thursday, Tuesday, Wednesday}

Write the set in set–builder notation.

11) {2} 11) _____
A) {x} B) {x | x is the natural number 2}
C) {x | x is a natural number} D) {x is a constant}

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12) {2, 4, 6, 8} 12) _____

A) {x | x is any even natural number}
B) {x | x is an even natural number less than 10}
C) {x | x is any even integer less than 10}
D) {2, 4, 6, 8}

13) {16, 17, 18, 19} 13) _____

A) {x | x is an integer between 16 and 19}
B) {16, 17, 18, 19}
C) {x | x is an integer between 15 and 20}
D) {x | x is an integer less than 20}

14) {–6, –5, –4, –3, ...} 14) _____

A) {x | x is an integer greater than –7}
B) {x | x is any integer}
C) {x | x is an integer between –7 and –2}
D) {–6, –5, –4, –3}

15) {..., –3, –2, –1, 0, 1, 2, 3, ...} 15) _____

A) {x | x is a natural number}
B) {–3, –2, –1, 0, 1, 2, 3}
C) {x | x is an integer}
D) {x | x is any integer greater than –3}

16) {12, 15, 18, 21, ..., 42} 16) _____

A) {x | x is a multiple of 3 between 9 and 45}
B) {x | x is a multiple of 3 greater than 12}
C) {x | x is a multiple of 3}
D) {x | x is a multiple of 3 between 12 and 42}

17) {–3, –1, 1, 3, 5, ...} 17) _____

A) {x | x is an odd integer greater than –4}
B) {x | x is an odd integer}
C) {x | x is an integer greater than –4}
D) {x | x is an odd integer between –4 and 6}

18) {2, 4, 8, 16, 32, ...} 18) _____

A) {x | x is a positive integer power of 2}
B) {x | x is a positive multiple of 2}
C) {x | x is an integer power of 2}
D) {x | x is a positive multiple of 4}

19) The set of all calculus books 19) _____

A) {x | x is a calculus book}
B) {x is a calculus book}
C) {a calculus book}
D) {any calculus book}

20) The set of all cars owned by students 20) _____

A) {x is a student with a car}
B) {x is a car}
C) {x | x is a student with a car}
D) {x | x is a car owned by a student}

Identify the set as finite or infinite.

21) {9, 10, 11, ..., 36} 21) _____

A) Finite
B) Infinite

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22) $\left\{1, \frac{1}{4}, \frac{1}{16}, \frac{1}{64}, \ldots\right\}$ 22) _____

A) Infinite B) Finite

23) {x | x is a counting number larger than 136} 23) _____

A) Infinite B) Finite

24) {x | x is an odd counting number} 24) _____

A) Infinite B) Finite

25) {x | x is a 12–headed lizard} 25) _____

A) Infinite B) Finite

26) {x | x is a fraction between 63 and 64} 26) _____

A) Finite B) Infinite

27) {x | x is a prime number} 27) _____

A) Infinite B) Finite

28) $\left\{1, \frac{3}{7}, \frac{9}{49}, \frac{27}{343}, \ldots, \frac{243}{16807}\right\}$ 28) _____

A) Infinite B) Finite

Find n(A) for the set.

29) A = {0, 2, 4, 6, 8} 29) _____

A) n(A) = 5 B) n(A) = 2 C) n(A) = 4 D) n(A) = 8

30) A = {700, 701, 702, ..., 7000} 30) _____

A) n(A) = 6300 B) n(A) = 7000 C) n(A) = 4 D) n(A) = 6301

31) A = {x | x is a month in the year} 31) _____

A) n(A) = 52 B) n(A) = 24 C) n(A) = 1 D) n(A) = 12

32) A = {x | x is a number on a clock face} 32) _____

A) n(A) = 12 B) n(A) = 3 C) n(A) = 6 D) n(A) = 24

33) A = {x | x is a second in a minute} 33) _____

A) n(A) = Infinite B) n(A) = 60 C) n(A) = 12 D) n(A) = 120

34) A = {1, 1, 2, 2, ..., 5, 5} 34) _____

A) n(A) = 10 B) n(A) = 3 C) n(A) = 5 D) n(A) = 6

35) A = {–8, –7, –6, ..., 0} 35) _____

A) n(A) = 9 B) n(A) = 8 C) n(A) = 1 D) n(A) = 4

36) A = $\left\{\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \ldots, \frac{1}{29}, \frac{1}{30}\right\}$ 36) _____

A) n(A) = 31 B) n(A) = Infinite C) n(A) = 29 D) n(A) = 30

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37) $A = \left\{\frac{1}{2}, -\frac{1}{2}, \frac{2}{3}, -\frac{2}{3}, \frac{3}{4}, -\frac{3}{4}, \ldots, \frac{19}{20}, -\frac{19}{20}\right\}$ 37) _____

A) n(A) = 38 B) n(A) = Infinite C) n(A) = 40 D) n(A) = 19

Determine whether or not the set is well defined.

38) {x | x is a tennis player who has won at Wimbledon} 38) _____

A) Not well defined B) Well defined

39) {x | x is a low–fat ice cream} 39) _____

A) Well defined B) Not well defined

40) {x | x is a football team that has won the Super Bowl} 40) _____

A) Well defined B) Not well defined

41) {x | x is a mystery book in the library} 41) _____

A) Not well defined B) Well defined

42) {x | x is a stock on the AmEx today} 42) _____

A) Not well defined B) Well defined

43) {x | x is an expensive boat on the Great Lakes} 43) _____

A) Not well defined B) Well defined

44) {x | x is a four–year college in Utah} 44) _____

A) Not well defined B) Well defined

Complete the blank with either ∈ or ∉ to make the statement true.

45) –5 __ {5, 7, 9, ..., 17} 45) _____

A) ∈ B) ∉

46) 0 __ {–2, 2, 4, 18, 28} 46) _____

A) ∈ B) ∉

47) {7} __ {{4}, {5}, {6}, {7}, {8}} 47) _____

A) ∉ B) ∈

48) 4 __ {10, 9, 8, 7} 48) _____

A) ∉ B) ∈

49) 8 __ {5, 10, 4, 8, 19} 49) _____

A) ∈ B) ∉

50) 11 __ {9, 10, 11, 12} 50) _____

A) ∉ B) ∈

51) a __ {A, B, C, ..., Z} 51) _____

A) ∈ B) ∉

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52) 7 __ {2, 3, 4, ..., 7} 52) _____

A) ∉ B) ∈

53) {–5} __ {–4 – 3, –3 – 3, –2 – 3, –1 – 3} 53) _____

A) ∈ B) ∉

54) 0 __ {1 + 5, –1 + 5, –3 + 5, –5 + 5} 54) _____

A) ∈ B) ∉

Tell whether the statement is true or false.

55) 10 ∈ {20, 30, 40, 50, 60} 55) _____

A) True B) False

56) {2, 10, 15} = {0, 2, 10, 15} 56) _____

A) True B) False

57) 17 ∉ {16, 14, 13, ..., 1} 57) _____

A) True B) False

58) {8} = {x | x is an even counting number between 10 and 16} 58) _____

A) True B) False

59) {54, 55, 54, 55} = {54, 55} 59) _____

A) True B) False

60) {2, 16, 26, 9, 32} = {32, 16, 9, 62, 2} 60) _____

A) True B) False

61) {x | x is a counting number greater than 36} = {36, 37, 38, ...} 61) _____

A) True B) False

62) 11 ∉ {x | x is an even counting number} 62) _____

A) True B) False

63) k ∉ {p, a, k, h, v} 63) _____

A) True B) False

64) {s, q, y, o, d} = {o, d, q, s, y} 64) _____

A) True B) False

Write true or false for the following statement.

Let A = {3, 5, 7, 9, 11, 13}

B = {3, 5, 9, 11}

C = {5, 9, 13}

65) 5 ∉ C 65) _____

A) True B) False

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66) $9 \in B$ 66) _____

A) True B) False

67) Every element of B is also an element of C. 67) _____

A) True B) False

68) A = {x | x is an odd counting number greater than 1 and less than 15} 68) _____

A) True B) False

69) $0 \in A$ 69) _____

A) True B) False

70) Every element of C is also an element of A. 70) _____

A) True B) False

71) {x | x is an odd counting number less than 15} = A 71) _____

A) True B) False

72) {13} $\in$ B 72) _____

A) True B) False

Use $\subseteq$ or $\nsubseteq$ in the blank to make a true statement.

73) {4, 6, 8} __ {3, 4, 5, 6, 8} 73) _____

A) $\nsubseteq$ B) $\subseteq$

74) {3, 31, 36} __ {16, 31, 36, 46} 74) _____

A) $\nsubseteq$ B) $\subseteq$

75) {a, c, g, i} __ {a, c, g, i, k} 75) _____

A) $\nsubseteq$ B) $\subseteq$

76) $\varnothing$ __ $\varnothing$ 76) _____

A) $\nsubseteq$ B) $\subseteq$

77) {7, 9, 11} __ {x | x is an odd counting number} 77) _____

A) $\subseteq$ B) $\nsubseteq$

78) {k, p, d} __ {k, k, p, p, d, d} 78) _____

A) $\subseteq$ B) $\nsubseteq$

79) {x | x is a counting number larger than 5} __ {7, 8, 9, ...} 79) _____

A) $\nsubseteq$ B) $\subseteq$

Decide whether $\subseteq$, $\subset$, both, or neither can be placed in the blank to make a true statement.

80) {4, 5, 6} __ {3, 4, 5, 6} 80) _____

A) $\subset$ B) Neither C) Both $\subset$ and $\subseteq$ D) $\subseteq$

81) $\varnothing$ __ {4, 19, 28, 43} 81) _____

A) Neither B) $\subset$ C) Both $\subset$ and $\subseteq$ D) $\subseteq$

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82) {4, 5, 6} __ {4, 5, 6} 82) _____
A) Both ⊂ and ⊆ B) ⊆ C) Neither D) ⊂

83) {0} __ ∅ 83) _____
A) Neither B) ⊆ C) Both ⊂ and ⊆ D) ⊂

84) {a, b} __ {z, a, y, b, x, c} 84) _____
A) Both ⊂ and ⊆ B) ⊆ C) ⊂ D) Neither

85) {s, r, t} __ {s, r, t} 85) _____
A) ⊆ B) Neither C) Both ⊆ and ⊂ D) ⊂

Determine whether the statement is true or false.
Let A = {1, 3, 5, 7}
B = {5, 6, 7, 8}
C = {5, 8}
D = {2, 5, 8}
U = {1, 2, 3, 4, 5, 6, 7, 8}

86) C ⊂ D 86) _____
A) True B) False

87) ∅ ⊆ A 87) _____
A) True B) False

88) {6, 5, 8, 7} ⊆ B 88) _____
A) True B) False

89) D ⊆ B 89) _____
A) True B) False

90) A ≠ {7, 5, 3, 1} 90) _____
A) True B) False

91) {5} ⊆ D 91) _____
A) True B) False

92) {0} ⊆ U 92) _____
A) True B) False

93) {8, 5, 2} ⊂ D 93) _____
A) True B) False

94) C ⊄ B 94) _____
A) True B) False

95) C ⊄ A 95) _____
A) True B) False

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Find the number of subsets of the set.

96) {7, 8, 9} 96) _____

A) 7 B) 3 C) 8 D) 6

97) {x | x is an even number between 19 and 37} 97) _____

A) 8 B) 512 C) 68 D) 256

98) {0} 98) _____

A) 0 B) 1 C) 4 D) 2

99) {mom, dad, son, daughter} 99) _____

A) 8 B) 16 C) 14 D) 12

100) {math, English, history, science, art} 100) _____

A) 32 B) 16 C) 24 D) 28

101) {x | x is a day of the week} 101) _____

A) 256 B) 127 C) 128 D) 124

102) {1, 2, 3, ..., 9} 102) _____

A) 512 B) 16 C) 1024 D) 508

Find the number of proper subsets of the set.

103) {5, 6, 7} 103) _____

A) 5 B) 2 C) 6 D) 7

104) {x | x is an even number between 17 and 29} 104) _____

A) 63 B) 32 C) 28 D) 64

105) {0} 105) _____

A) 1 B) 0 C) 2 D) 4

106) {car, boat, truck, train} 106) _____

A) 15 B) 8 C) 14 D) 16

107) {poetry, drama, speech, art, film} 107) _____

A) 32 B) 16 C) 31 D) 24

108) {x | x is a day of the week} 108) _____

A) 128 B) 64 C) 256 D) 127

109) {1, 2, 3, ..., 6} 109) _____

A) 127 B) 58 C) 63 D) 64

Let U = {1, 2, 4, 5, a, b, c, d, e}. Find the complement of the set.

110) A = {2, 4, b, d} 110) _____

A) {1, 3, 5, a, c, e} B) {1, 5, a, e}

C) {1, 2, 4, 5, a, b, c, d, e} D) {1, 5, a, c, e}

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111) S = {1, 5, e, d, a} 111) _____

A) {2, 3, 4, b, c} B) {2, 3, 4, a, b, c} C) {1, 2, 4, b, c} D) {2, 4, b, c}

112) S = {1, 2, 4, 5, a, b, c, e} 112) _____

A) ∅ B) {d} C) {u} D) {3, d}

113) Q = {a, b, c, d} 113) _____

A) {1, 2, 4, 5, e} B) {e} C) {1, 2, 4, 5} D) {1, 2, 3, 4, 5, e}

114) G = {a} 114) _____

A) {u, v} B) {1, 2, 3, 4, 5, b, c, d, e}

C) {1, 2, 5, b, c, d, e} D) {1, 2, 4, 5, b, c, d, e}

115) S = ∅ 115) _____

A) ∅' B) ∅ C) {0} D) U

116) P = {a, b, d, e, 1, 2, 4, 5} 116) _____

A) ∅ B) U C) {c, 3} D) {c}

117) C = {1, 2, 5, b, d} 117) _____

A) {3, 4, a, c, e} B) {4, a, b, c, e} C) {4, a, c, e} D) {3, 4, a, b, c, e}

118) T = U 118) _____

A) {U – T'} B) T C) ∅ D) U

119) P = {e, a, c, 4, 5} 119) _____

A) {b, d, 1, 2, 3} B) {1, 2, b, c, d} C) {1, 2, 3, b, d} D) {1, 2, b, d}

The lists below show five agricultural crops in Alabama, Arkansas, and Louisiana.

Alabama	**Arkansas**	**Louisiana**
soybeans (s)	**soybeans (s)**	**soybeans (s)**
peanuts (p)	**rice (r)**	**sugarcane (n)**
corn (c)	**cotton (t)**	**rice (r)**
hay (h)	**hay (h)**	**corn (c)**
wheat (w)	**wheat (w)**	**cotton (t)**

Let U be the smallest possible universal set that includes all of the crops listed, and let A, K and L be the sets of five crops Alabama, Arkansas, and Louisiana, respectively. Find each of the following sets.

120) The set of crops in U. 120) _____

A) {s, p, c, w, r, t, n} B) {c, h, n, p, r, s, t, w}

C) {s, p, c, h, w, s, r, t, h, w, s, n, r, c, t} D) {s, p, c, h, w, r, t, n, c}

121) The set of crops in A'. 121) _____

A) {n, r, t} B) {r, t}

C) {h, n, r, t} D) {c, h, n, r, s, t, w}

122) The set of crops in both A and K 122) _____

A) {h, s, w} B) {c, p, r, t}

C) {c, h, s, t, w} D) {c, h, p, r, s, t, w}

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123) The set of crops in both L and K 123) _____

A) {c, n, r, s, t}
B) {c, h, n, r, s, t, w}
C) {c, h, n, w}
D) {r, s, t}

124) The set of crops in both L and K' 124) _____

A) {h, w}
B) {r, s, t}
C) {c, n, p}
D) {c, n}

125) The set of crops in both A and L' 125) _____

A) {n, r, t}
B) {c, s}
C) {h, p, w}
D) {h, n, t, w}

126) The set of crops in both A' and K' 126) _____

A) {c, n, p, r, t}
B) ∅
C) {n}
D) {c, p, r, t}

127) The set of crops common to A, K, and L 127) _____

A) {n, p}
B) {n, p, s}
C) {s}
D) {c, h, n, p, r, s, t, w}

128) The set of crops in either A or L or both 128) _____

A) {c, n, p}
B) {h, n, p, r, t, w}
C) {c, h, n, p, r, s, t, w}
D) {c,s}

129) The set of crops in either A' or L or both 129) _____

A) {h, p, w}
B) {c, n, r, s, t}
C) {n, r, t}
D) {h, n, p, r, t, w}

Solve the problem.

130) List all possible subsets of the set {m, n}. 130) _____

A) {m}, {n}, ∅
B) {m}, {n}, {m, n}
C) {m}, {n}, {m, n}, ∅
D) {m}, {n}

131) List all possible proper subsets of the set {2, 6, 7}. 131) _____

A) {2}, {6}, {7}, {2, 6}, {2, 7}, {6, 7}, {2, 6, 7}
B) ∅, {2}, {6}, {7}, {2, 6}, {2, 7}, {6, 7}, {2, 6, 7}
C) {2}, {6}, {7}, {2, 6}, {2, 7}, {6, 7}
D) ∅, {2}, {6}, {7}, {2, 6}, {2, 7}, {6, 7}

132) A committee is to be formed. Possible candidates for the committee are Eric, Frances, Greg, and Jose. Denoting these four people by e, f, g, j, list all possible committees of two people (ie list all possible subsets of size two). 132) _____

A) {e, f}, {e, g}, {e, j}, {f, g}, {f, j}, {g, j}
B) {e, f}, {e, g}, {f, g}, {g, j}
C) {e, f}, {e, g}, {e, j}, {f, g}, {f, j}, {g, j}, {f, e}, {g, e}
D) {e, f}, {e, g}, {e, j}, {f, j}, {g, j}

133) A committee is to be formed. Possible candidates for the committee are Eric, Frances, Greg, and Jose. Denoting these four people by e, f, g, j, list all possible committees if the committee is to contain at least two people and may contain up to four people. 133) _____

A) {e, f}, {e, g}, {e, j}, {f, g}, {f, j}, {g, j}, {e, f, g}, {e, f, j}, {f, g, j}, {e, f, g, j}
B) {e, f}, {e, g}, {e, j}, {f, j}, {e, f, g}, {e, f, j}, {e, g, j}, {f, g, j}, {e, f, g, j}
C) {e, f}, {e, g}, {e, j}, {f, g}, {f, j}, {g, j}, {e, f, g}, {e, f, j}, {e, g, j}, {f, g, j}
D) {e, f}, {e, g}, {e, j}, {f, g}, {f, j}, {g, j}, {e, f, g}, {e, f, j}, {e, g, j}, {f, g, j}, {e, f, g, j}

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134) An adventure travel company has reservations from four people (Lee, Maria, Nancy, and Pablo) for its white water rafting trip on June 1st. However the company knows that any of these people may fail to show up on the day of the trip. Denoting these four people by l, m, n, p, list all possibilities for the group of people who show up on June 1st for the rafting trip (ie list all possible subsets of {l, m, n, p}). 134) _____

A) ∅, {l}, {m}, {n}, {p}, {l, m}, {l, n}, {l, p}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}, {l, m, n, p}

B) {l}, {m}, {n}, {p}, {l, m}, {l, n}, {l, p}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}, {m, n, l}, {l, m, n, p}

C) ∅, {l}, {m}, {n}, {p}, {l, m}, {l, n}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}

D) {l}, {m}, {n}, {p}, {l, m}, {l, n}, {l, p}, {m, n}, {m, p}, {n, p}, {l, m, n}, {l, m, p}, {l, n, p}, {m, n, p}, {l, m, n, p}

135) A committee is to be formed. Possible candidates for the committee are Anne, Daniel, Raul, Sarah, and Teresa. Denoting these five people by a, d, r, s, t, list all possible committees of three people (ie list all possible subsets of size three). 135) _____

A) {a, d, r}, {a, d, s}, {a, d, t}, {a, r, s}, {d, r, s}, {d, r, t}, {d, s, t}, {r, s, t}

B) {a, d, r}, {a, d, s}, {a, d, t}, {a, r, s}, {a, r, t}, {a, s, t}, {d, r, t}, {d, s, t}, {r, s, t}

C) {a, d, r}, {a, d, s}, {a, d, t}, {a, r, s}, {a, r, t}, {a, s, t}, {d, r, s}, {d, r, t}, {d, s, t}, {r, s, t}

D) {a, d, r}, {a, d, s}, {a, d, t}, {a, r, s}, {a, r, t}, {a, s, t}, {d, r, s}, {d, r, t}, {d, s, t}, {r, s, t}, {d, a, r}, {s, t, d}

List the elements in the set .

Let U = {q, r, s, t, u, v, w, x, y, z}
A = {q, s, u, w, y}
B = {q, s, y, z}
C = {v, w, x, y, z}.

136) A ∪ C 136) _____

A) {q, s, u, v, w, y, z}
B) {q, s, u, v, w, x, y, z}
C) {q, s, u, w, y, v, w, x, y, z}
D) {w, y}

137) B ∩ C 137) _____

A) {w, y, z}
B) {y, z}
C) {y}
D) {q, s, v, w, x, y, z}

138) A ∩ B' 138) _____

A) {q, s, t, u, v, w, x, y}
B) {t, v, x}
C) {r, s, t, u, v, w, x, z}
D) {u, w}

139) (A ∪ B)' 139) _____

A) {s, u, w}
B) {t, v, x}
C) {r, t, v, x}
D) {r, s, t, u, v, w, x, z}

140) (A ∩ B)' 140) _____

A) {t, v, x}
B) {s, u, w}
C) {q, s, t, u, v, w, x, y}
D) {r, t, u, v, w, x, z}

141) A' ∪ B 141) _____

A) {r, s, t, u, v, w, x, z}
B) {s, u, w}
C) {q, s, t, u, v, w, x, y}
D) {q, r, s, t, v, x, y, z}

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142) $C' \cup A'$ 142) _____

A) {q, s, u, v, w, x, y, z}
B) {s, t}
C) {q, r, s, t, u, v, x, z}
D) {w, y}

143) $C' \cap A'$ 143) _____

A) {w, y}
B) {r, t}
C) {q, r, s, t, u, v, x, z}
D) {q, s, u, v, w, x, y, z}

144) $C - A$ 144) _____

A) {v, x, z} B) {w, y} C) {q, s, u} D) {q, s, u, v, x, z}

145) $A' - C$ 145) _____

A) {q, s, u, v, x, z} B) {v, x, z} C) {r, t} D) {q, s, u}

146) $A \cup (B \cap C)$ 146) _____

A) {q, w, y} B) {q, y, z} C) {q, s, u, w, y, z} D) {q, r, w, y, z}

147) $A \cap (B \cup C)$ 147) _____

A) {q, y, z} B) {q, s, u, w, y, z} C) {q, r, w, y, z} D) {q, s, w, y}

148) $(A' \cup C) \cap B'$ 148) _____

A) {r, t, u, v, w, s, y, z}
B) {r, t, v, w, x}
C) {y, z}
D) {v, x}

149) $(B' \cap C)' \cup A$ 149) _____

A) {q, r, s, t, u, v, w, x, y}
B) {q, s, u, y}
C) {q, r, s, t, u, w, y, z}
D) {q, s, u, v, w, x, y}

150) $(A \cup B')' \cap C'$ 150) _____

A) ∅ B) {v, w, x, y} C) {q, r, s, t, u} D) {q, r, s, t, u, z}

151) $B \cap (A - C)$ 151) _____

A) {q, s, u, y}
B) {q, r, s, t, u, v, w, x, y}
C) {q, s, u, y, z}
D) {q, s}

152) $(A \cap B') \cup (B \cap A')$ 152) _____

A) {q, s, u, w, y, z} B) {q, s, y} C) {u, w, z} D) {u, w, y, z}

Let U = {all soda pops}, A = {all diet soda pops}, B = {all cola soda pops}, C = {all soda pops in cans}, and D = {all caffeine–free soda pops}. Describe the set in words.

153) $A \cap B$ 153) _____

A) All diet and all cola soda pops
B) All diet cola soda pops
C) All soda pops
D) All diet or all cola soda pops

154) $A' \cap C$ 154) _____

A) All non–diet soda pops in cans
B) All diet soda pops and all soda pops in cans
C) All non–diet soda pops and all soda pops in cans
D) All diet soda pops in cans

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155) $A \cap B \cap D$ 155) _____

A) All soda pops not in cans
B) All diet and all cola and all caffeine–free soda pops
C) All diet, caffeine–free cola pops in cans
D) All diet, caffeine–free cola soda pops

156) $(A \cup B) \cup D$ 156) _____

A) All diet, caffeine–free cola soda pops
B) All soda pops not in cans
C) All soda pops
D) All diet or all cola or all caffeine–free soda pops

157) $(A \cap B) \cap C'$ 157) _____

A) All non–diet, non–cola soda pops not in cans
B) All cola soda pops not in cans
C) All diet and all cola soda pops not in cans
D) All diet cola soda pops not in cans

158) $(A \cup D) \cap C'$ 158) _____

A) All diet, caffeine–free soda pops not in cans
B) All non–diet, non–caffeine–free soda pops not in cans
C) All diet soda pops not in cans or all caffeine–free soda pops not in cans
D) All non–cola soda pops not in cans

159) $(A' \cap B') \cup C$ 159) _____

A) All non–diet non–cola soda pops and all soda pops not in cans
B) All non–diet soda pops and all non–cola soda pops in cans
C) All non–diet non–cola soda pops or all soda pops in cans
D) All non–diet non–cola soda pops in cans

160) $(A - D) \cap B$ 160) _____

A) All diet soda pops that contain caffeine and all cola soda pops
B) All diet cola soda pops that contain caffeine
C) All non–diet, caffeine–free cola soda pops
D) All diet caffeine–free cola soda pops

161) $(B \cap C') \cup (C \cap B')$ 161) _____

A) All non–cola soda pops not in cans
B) All cola soda pops not in cans or all non–cola soda pops in cans
C) All cola soda pops and all soda pops in cans
D) All cola soda pops in cans and all non–cola soda pops not in cans

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The lists below show five agricultural crops in Alabama, Arkansas, and Louisiana.

Alabama	Arkansas	Louisiana
soybeans (s)	soybeans (s)	soybeans (s)
peanuts (p)	rice (r)	sugarcane (n)
corn (c)	cotton (t)	rice (r)
hay (h)	hay (h)	corn (c)
wheat (w)	wheat (w)	cotton (t)

Let U be the smallest possible universal set that includes all of the crops listed, and let A, K and L be the sets of five crops Alabama, Arkansas, and Louisiana, respectively. Find each of the following sets.

162) $A \cap K$ 162) _____

A) {h, s, w}
B) {c, h, s, t, w}
C) {c, h, p, r, s, t, w}
D) {c, p, r, t}

163) $L \cap K$ 163) _____

A) {c, h, n, r, s, t, w}
B) {c, n, r, s, t}
C) {c, h, n, w}
D) {r, s, t}

164) $K' \cap L$ 164) _____

A) {c, n, p}
B) {r, s, t}
C) {h, w}
D) {c, n}

165) $L' \cap A$ 165) _____

A) {h, n, t, w}
B) {n, r, t}
C) {c, s}
D) {h, p, w}

166) $A' \cap K'$ 166) _____

A) {c, p, r, t}
B) ∅
C) {n}
D) {c, n, p, r, t}

167) $A \cap K \cap L$ 167) _____

A) {n, p}
B) {n, p, s}
C) {s}
D) {c, h, n, p, r, s, t, w}

168) $A \cup L$ 168) _____

A) {c, h, n, p, r, s, t, w}
B) {h, n, p, r, t, w}
C) {c, n, p}
D) {c, s}

169) $K \cup L$ 169) _____

A) {c, h, n, r, s, t, w}
B) {r, s, t}
C) {c, h, n, w}
D) {n, r, t}

170) $A' \cup L$ 170) _____

A) {h, n, p, r, t, w}
B) {c, n, r, s, t}
C) {n, r, t}
D) {h, p, w}

171) $L' \cup K'$ 171) _____

A) {r, s, t}
B) {c, h, n, p, w}
C) {c, h, p, s, w}
D) {p}

Let A and B be sets with cardinal numbers, n(A) = a and n(B) = b, respectively. Decide whether the statement is true or false.

172) $n(A \cup B) = n(A) - n(B)$ 172) _____

A) True
B) False

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173) $n(A - B) = n(B - A)$ 173) _____
A) True B) False

174) If $B \subseteq A$, $n(B) = n(A - B)$. 174) _____
A) True B) False

175) If $B \subseteq A$, $n(B) = n(A) - n(A - B)$. 175) _____
A) True B) False

176) $n(A \cap B) = n(B \cap A)$ 176) _____
A) True B) False

177) $n(A \cup B) = n(A) + n(B) - n(A \cap B)$ 177) _____
A) True B) False

178) $n(A \cap B) = n(A) - n(B)$ 178) _____
A) True B) False

179) $n(A \cup B) + n(A \cap B) = n(A) + n(B)$ 179) _____
A) True B) False

Tell whether the statement is true or false.

180) $\{3, 9, 15\} = \{0, 3, 9, 15\}$ 180) _____
A) True B) False

181) $\{52, 53, 52, 53\} = \{52, 53\}$ 181) _____
A) True B) False

182) $\{6, 16, 24, 8, 33\} = \{33, 16, 8, 42, 6\}$ 182) _____
A) True B) False

183) $(2, 7) = (7, 2)$ 183) _____
A) True B) False

184) $(5 - 8, 4 - 15) = (-3, -11)$ 184) _____
A) True B) False

185) $(16 + 10, 19 + 10) = (16, 19)$ 185) _____
A) True B) False

186) $\{(3, 1), (0, 6), (-4, -2)\} = \{(-4, -2), (3, 1), (6, 0)\}$ 186) _____
A) True B) False

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Find the Cartesian product.

187) A = {8, 4, 11} 187) _____
B = {14, 15}
Find A × B.
A) {(8, 14), (4, 11), (11, 14)}
B) {(8, 14), (4, 15)}
C) {(14, 8), (14, 4), (14, 11), (15, 8), (15, 4), (15, 11)}
D) {(8, 14), (8, 15), (4, 14), (4, 15), (11, 14), (11, 15)}

188) A = {i, a} 188) _____
B = {t, d, m}
Find A × B.
A) {(i, t), (t, a), (i, d), (d, a), (i, m), (m, a)}
B) {(i, t), (i, d), (i, m), (a, t), (a, d), (a, m)}
C) {(t, i), (t, a), (d, i), (d, a), (m, i), (m, a)}
D) {(i, t), (a, t), (i, d), (a, d)}

189) A = {0} 189) _____
B = {19, 29, 39}
Find B × A.
A) {0}
B) {0, 0, 0}
C) {(19, 0), (29, 0), (39, 0)}
D) {(0, 19), (0, 29), (0, 39)}

190) A = {4, 3, 6, 7} 190) _____
B = {0, 1}
Find B × A.
A) {(4, 0), (3, 0), (6, 0), (7, 0), (4, 1), (3, 1), (6, 1), (7, 1)}
B) {(0, 4), (0, 3), (0, 6), (0, 7), (1, 4), (1, 3), (1, 6), (1, 7)}
C) {(4, 0), (4, 1), (3, 0), (3, 1)}
D) {0, 1, 4, 3, 6, 7}

Find the indicated cardinal number.

191) Find n(A × B) given that A = {2} and B = {1, 3}. 191) _____
A) 4 B) 3 C) 1 D) 2

192) Find n(A × C) given that A = {2} and C = {4, 5, 6}. 192) _____
A) 4 B) 3 C) 1 D) 2

193) Find n(D × B) given that B = {1, 3} and D = {7, 8, 9, 10}. 193) _____
A) 12 B) 16 C) 8 D) 7

194) Find n(C × D) given that C = {4, 5, 6} and D = {7, 8, 9, 10}. 194) _____
A) 27 B) 12 C) 81 D) 7

195) Find n(E), given that n(C × E) = 18 and C = {4, 5, 6}. 195) _____
A) 3 B) 54 C) 6 D) 9

196) Find n(F), given that n(B × F) = 18 and B = {1, 3}. 196) _____
A) 6 B) 36 C) 54 D) 9

197) Find n(G), given that n(D × G) = 20 and D = {7, 8, 9, 10}. 197) _____
A) 24 B) 4 C) 9 D) 5

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198) Find n(A × B) given that n(A) = 40 and n(B) = 7. 198) _____

A) 280 B) 33 C) 47 D) 54

199) Find n(B) given that n(A × B) = 30 and n(A) = 3 . 199) _____

A) 27 B) 3 C) 10 D) 33

200) Find n(A) given that n(A × B) = 22 and n(B) = 2. 200) _____

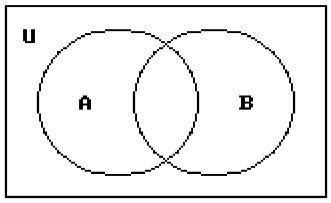
A) 20 B) 11 C) 2 D) 24

For the given sets, construct a Venn diagram and place the elements in the proper region.

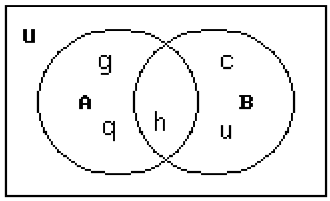
201) Let U = {c, d, g, h, k, u, q} 201) _____

A = {d, h, g, q}

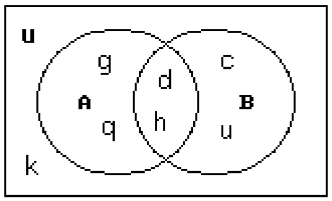
B = {c, d, h, u}



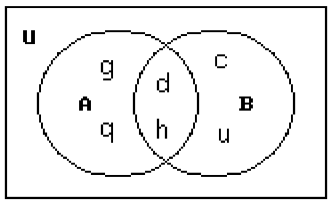
A)



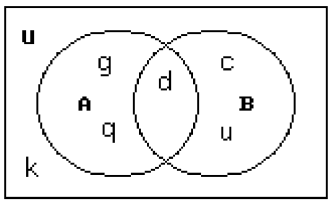
B)



C)



D)



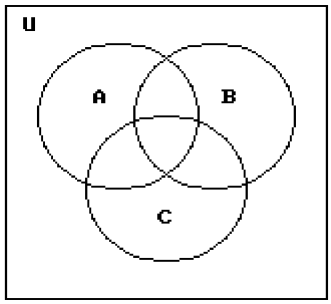
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202) Let U = {1, 2, 3, 4, 5, 6, 7, 8} 202) _____

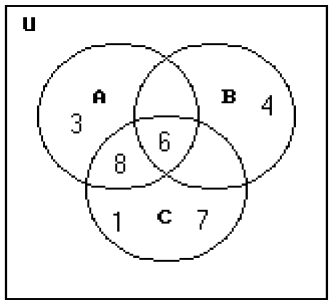
A = {3, 6, 8}

B = {4, 6}

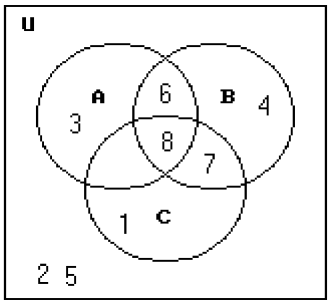
C = {1, 6, 7, 8}



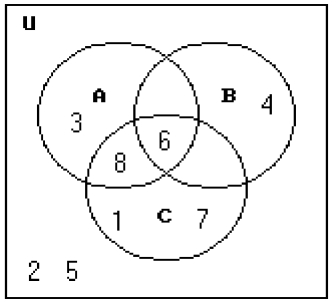
A)



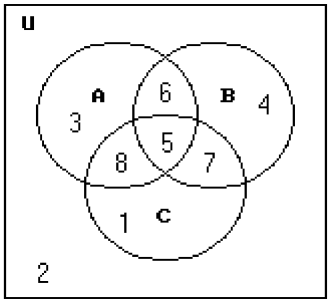
B)



C)

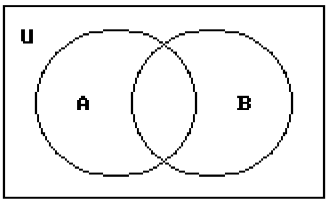


D)

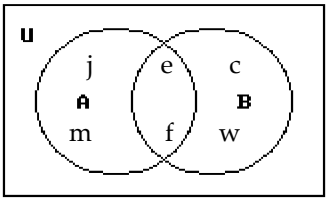


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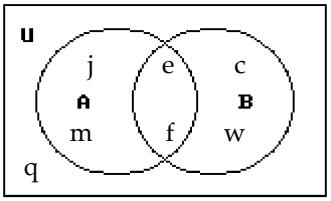
203) Let U = {c, e, f, j, q, m, w} 203) _____
A = {e, f, j, m}
B = {c, e, f, w}



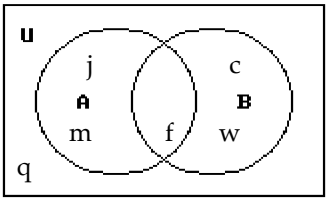
A)



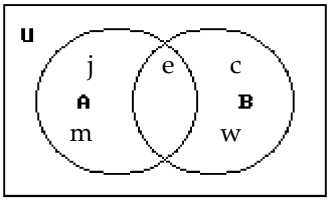
B)



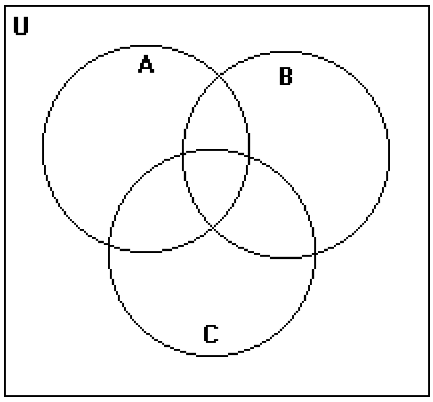
C)



D)

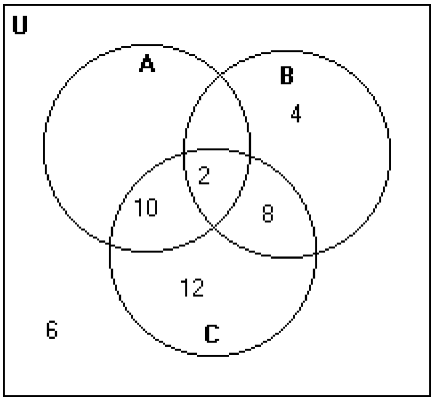


204) U = {2, 4, 6, 8, 10, 12} 204) _____
A = {2, 6, 10}
B = {2, 4, 8}
C = {2, 8, 10, 12}

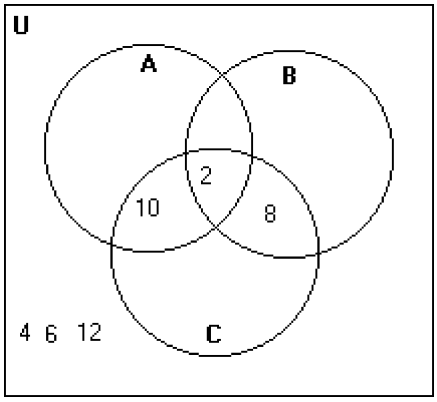


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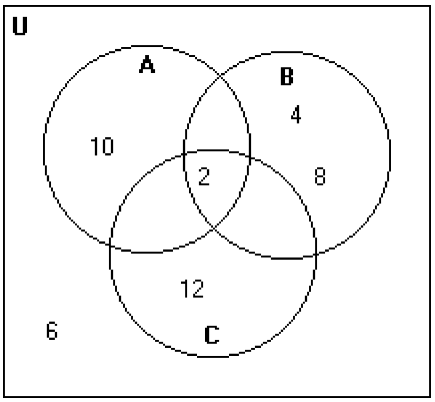
A)



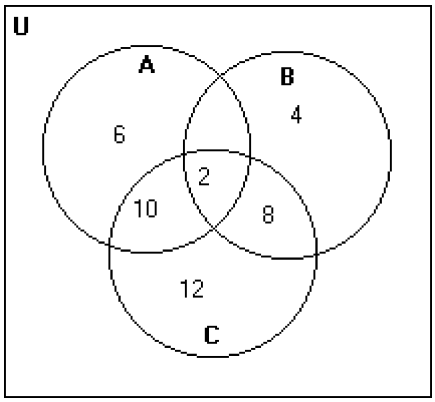
B)



C)

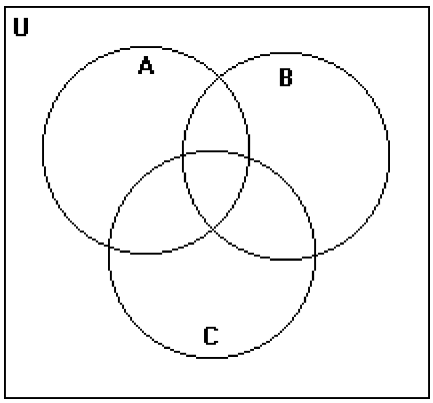


D)



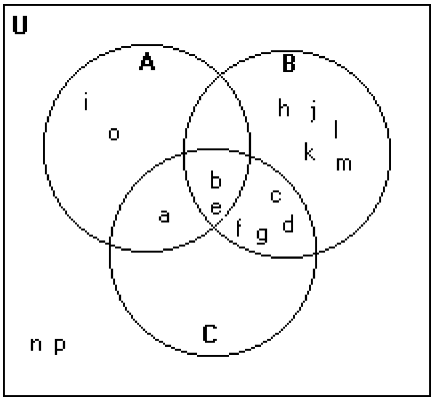
205) U = {a, b, c, d, e, f, g, h, i,j , k, l, m, n, o, p}
A = {a, e, i, o}
B = {b, c, d, f, g, h, j, k, l, m}
C = {a, b, c, d, e, f, g}

205) _____

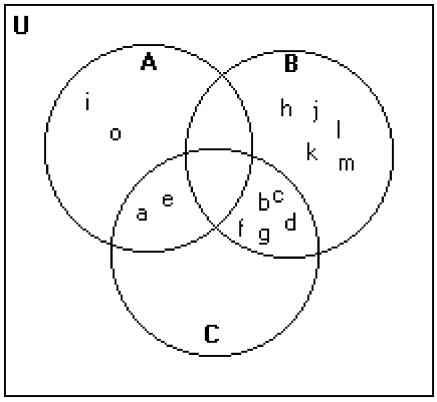


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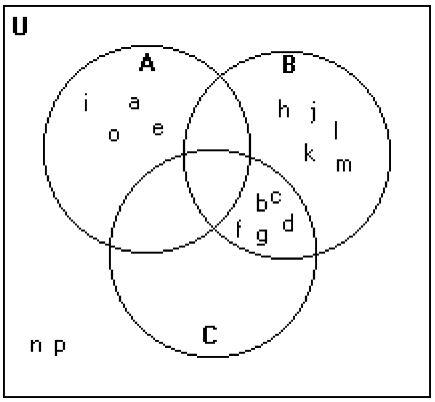
A)



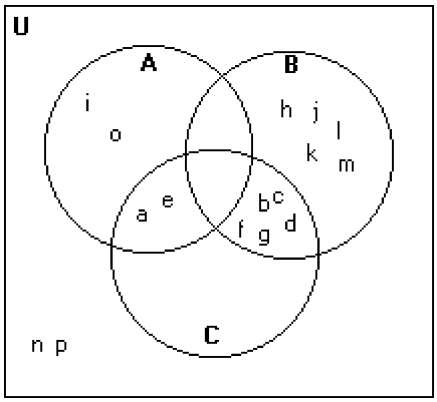
B)



C)

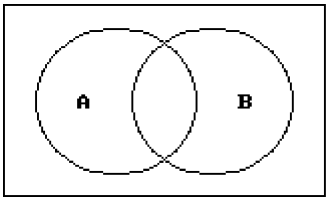


D)

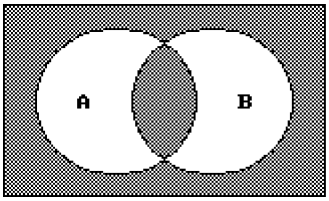


Shade the regions representing the set.

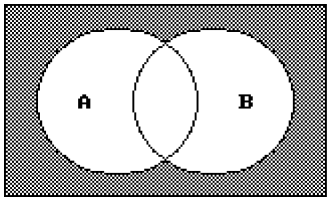
206) $A' \cap B'$ 206) _____



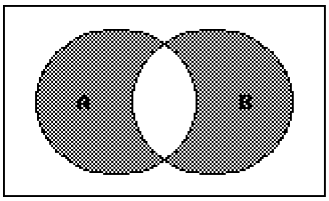
A)



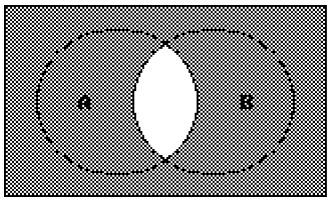
B)



C)

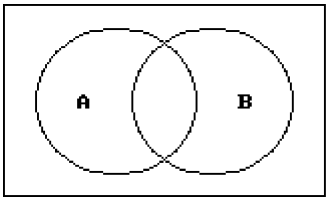


D)

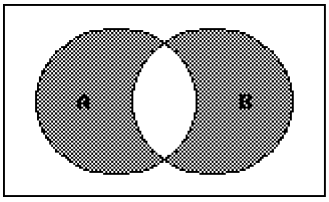


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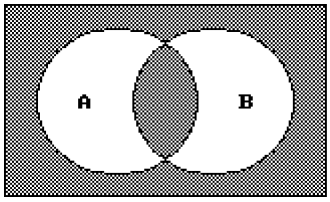
207) $A' \cup B'$ 207) _____



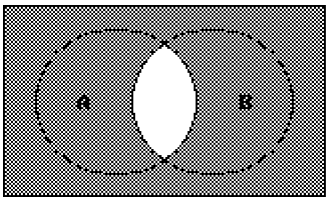
A)



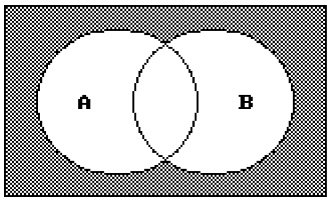
B)



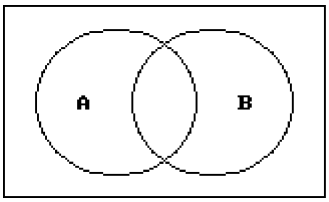
C)



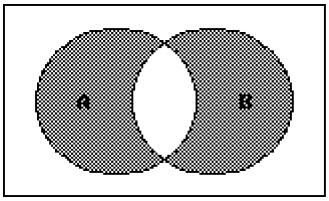
D)



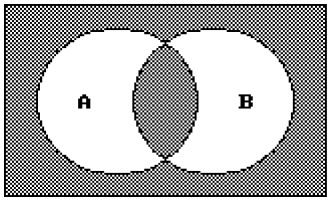
208) $(A \cup B) \cap (A \cap B)'$ 208) _____



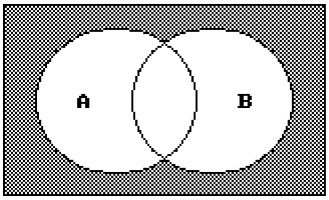
A)



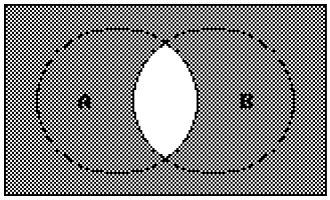
B)



C)

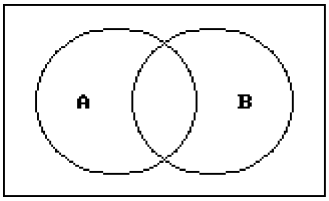


D)

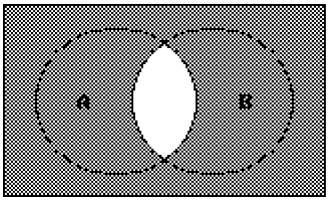


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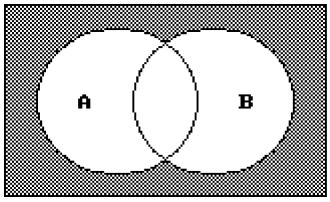
209) $(A \cap B) \cup (A \cup B)'$ 209) _____



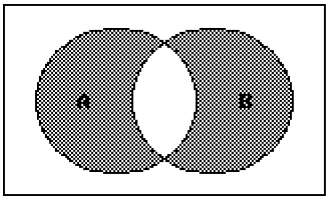
A)



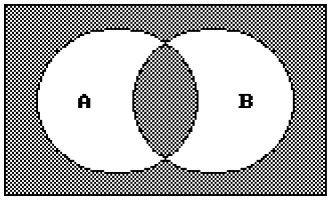
B)



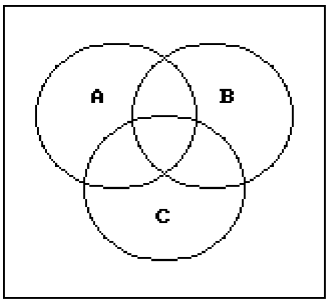
C)



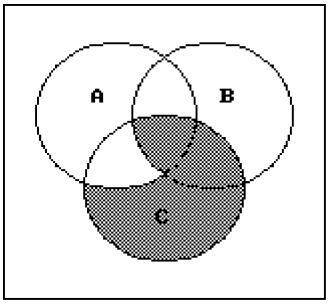
D)



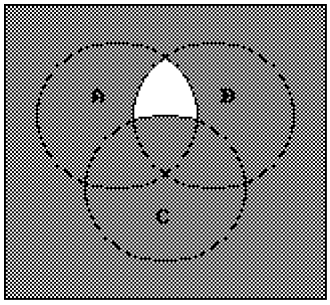
210) $(A \cap B \cap C')'$ 210) _____



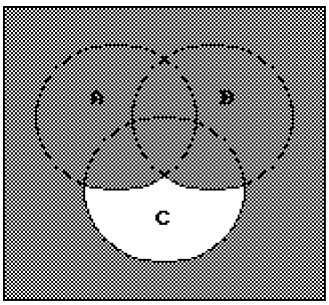
A)



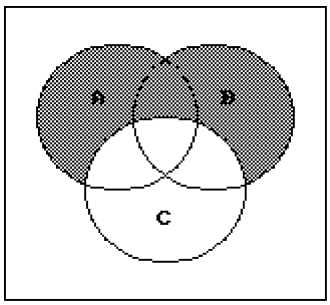
B)



C)

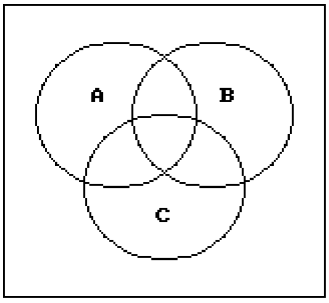


D)

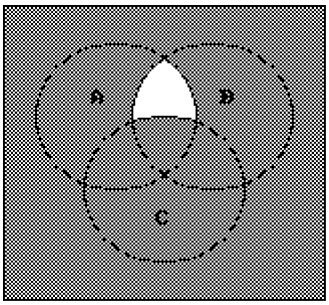


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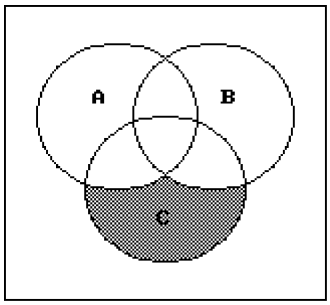
211) $(A \cup B \cup C')'$ 211) _____



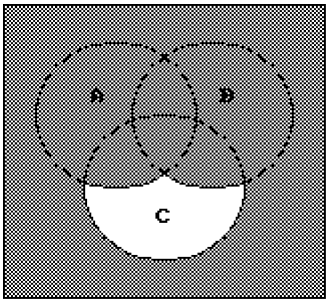
A)



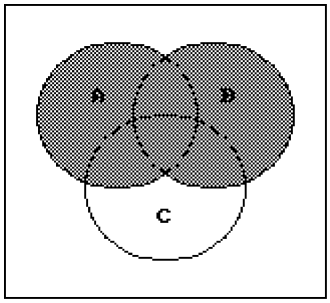
B)



C)

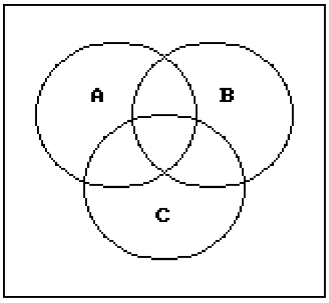


D)

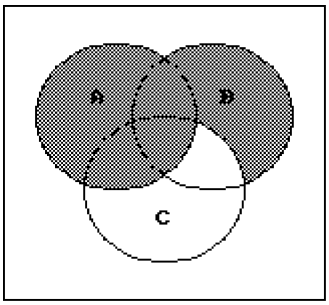


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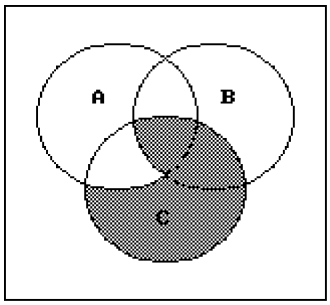
212) $C' \cap (A \cup B)$ 212) _____



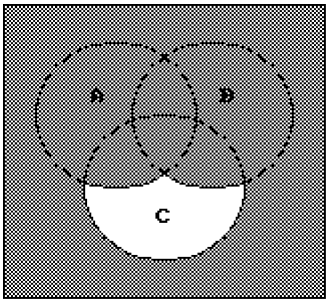
A)



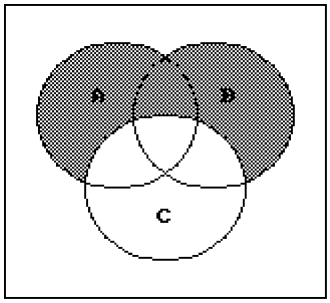
B)



C)

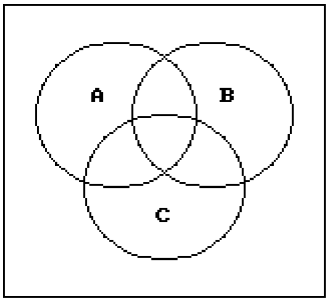


D)

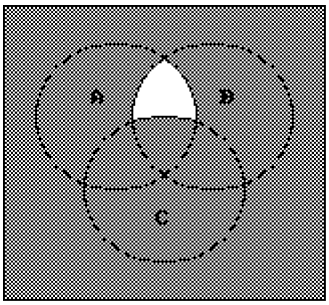


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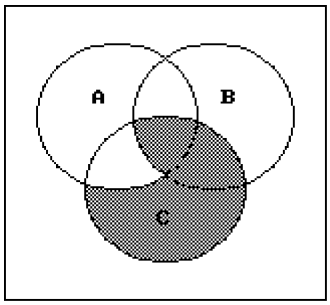
213) $(A' \cup B) \cap C$ 213) _____



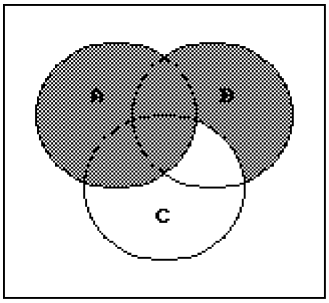
A)



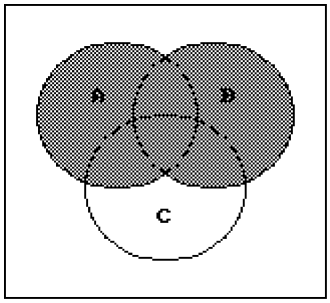
B)



C)

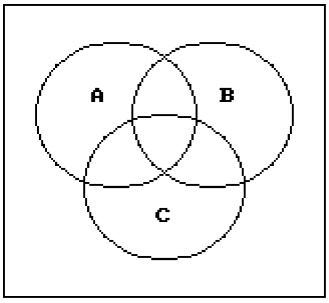


D)

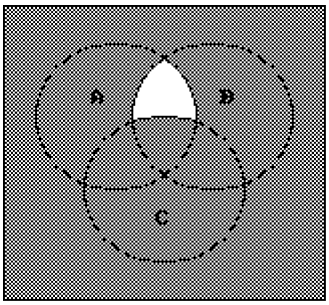


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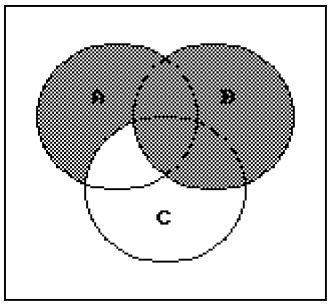
214) $A \cup (B \cap C')$ 214) _____



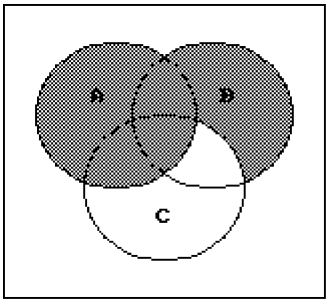
A)



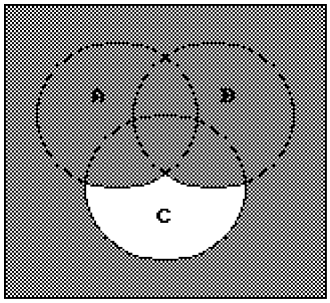
B)



C)

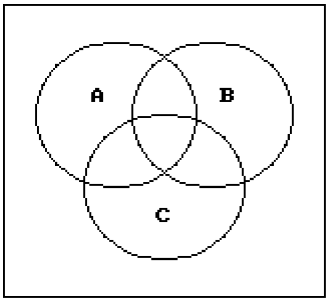


D)

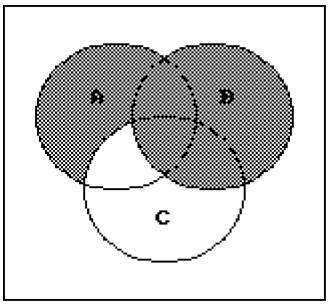


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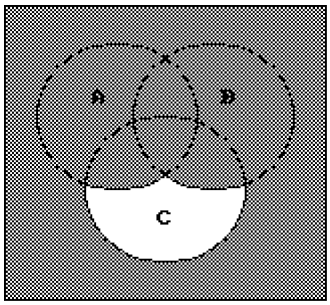
215) B ∪ (A ∩ C') 215) _____



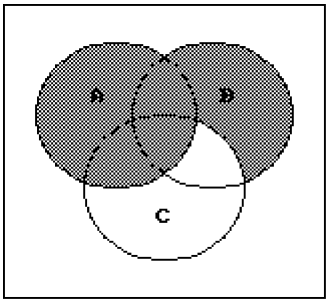
A)



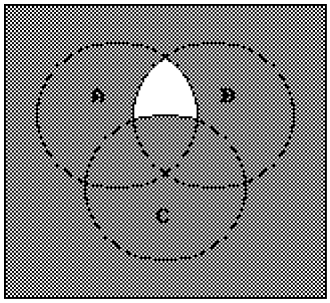
B)



C)

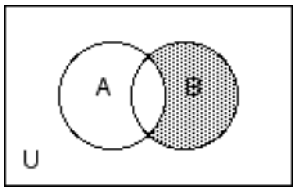


D)



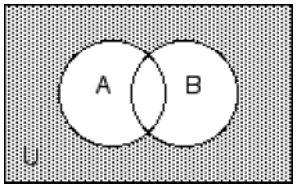
Write a description of the shaded region using the symbols A, B, C, ∪, ∩, –, and ′ as needed.

216) 216) _____



A) B – A′ B) A ∩ B′ C) A – B D) B ∩ A′

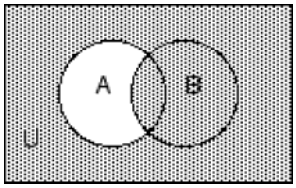
217) 217) _____



A) A′ ∩ B′ B) (A ∩ B)′ C) A – B D) A ∪ B

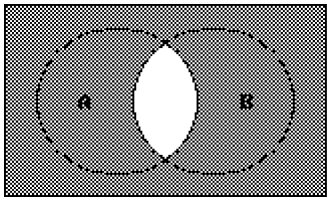
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218) 218) _____



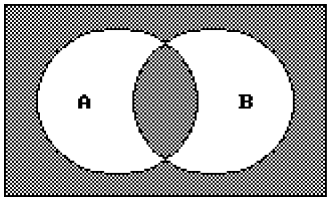
A) (A ∩ B)′ B) B – A C) A′ ∩ B D) A′ ∪ B

219) 219) _____



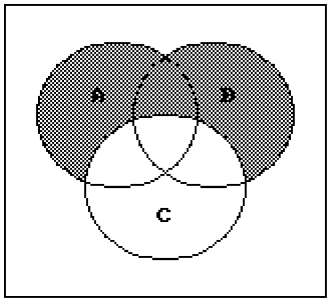
A) A ∩ B B) (A ∩ B)' C) A' ∩ B' D) (A ∪ B)'

220) 220) _____



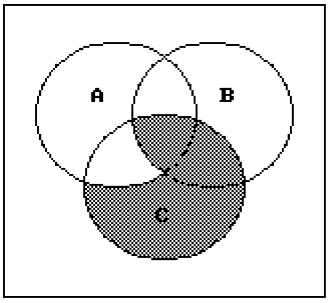
A) (A ∩ B) ∪ (A ∩ B)' B) (A ∩ B) ∪ (A ∪ B)'
C) A' ∩ B' D) (A – B) ∪ (B –A)

221) 221) _____



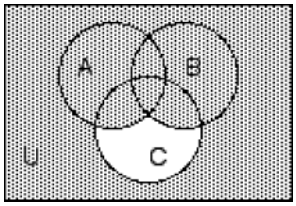
A) (A ∪ B) ∩ C' B) (A ∩ B) ∩ C' C) (A ∪ B) ∩ C D) (A ∪ B) ∪ C'

222) 222) _____



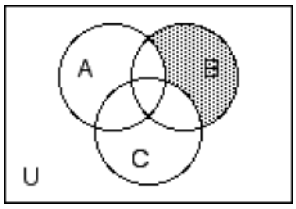
A) A' ∩ C B) (A' ∪ B) ∩ C C) (A ∪ B') ∩ C D) (A' ∩ B) ∪ C

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223) 

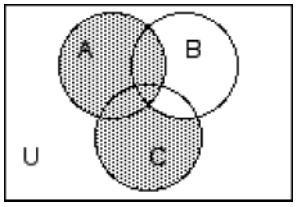
223) _____

A) $(A \cup B \cup C)'$ B) $A \cup B \cap C'$ C) $(A \cap B) \cup C'$ D) $(A \cup B) \cup C'$

224) 

224) _____

A) $B - (A \cap C)$ B) $A' \cap C' \cap B$ C) $(B - A) \cup C$ D) $B \cap (A \cap C)'$

225) 

225) _____

A) $B' \cap A \cup C$ B) $C \cap B' \cup A$ C) $A \cup C$ D) $A \cup C - B$

Decide whether the given statement is always true or not always true.

226) $A \cap A' = \varnothing$ 226) _____

A) Always true B) Not always true

227) $(A \cup B) \subseteq A$ 227) _____

A) Always true B) Not always true

228) $(A \cap B) \subseteq B$ 228) _____

A) Not always true B) Always true

229) $(A \cap B)' = A' \cup B'$ 229) _____

A) Always true B) Not always true

230) $(A \cup B)' = A' \cup B'$ 230) _____

A) Not always true B) Always true

231) If $A \subseteq B$, then $A \cup B = A$ 231) _____

A) Always true B) Not always true

232) If $B \subseteq A$, then $A \cap B = A$ 232) _____

A) Always true B) Not always true

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233) $A - A' = A$ 233) _____

A) Not always true B) Always true

234) $A \cup (B \cap C)' = A \cup (B' \cup C')$ 234) _____

A) Always true B) Not always true

235) $A \cap (B \cup C) = (A \cap B) \cup C$ 235) _____

A) Not always true B) Always true

Describe the conditions under which the statement is true.

236) $A \cap B = A$ 236) _____

A) $B \subseteq A$ B) $B = \varnothing$ C) Always true D) $A \subseteq B$

237) $A \cup \varnothing = U$ 237) _____

A) $A = \varnothing$ B) $A \neq \varnothing$ C) $A = U$ D) Always true

238) $A \cup B = B$ 238) _____

A) $A \subseteq B$ B) $A = \varnothing$ C) Always true D) $B \subseteq A$

239) $A \cap A' = A$ 239) _____

A) $A = U$ B) Always true C) $A \neq \varnothing$ D) $A = \varnothing$

240) $A \cap B' = A$ 240) _____

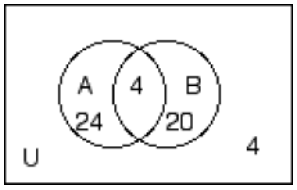
A) $B \subseteq A$ B) Always true C) $A \cap B = \varnothing$ D) $B = \varnothing$

241) $A \cup B = A$ 241) _____

A) Always true B) $B \subseteq A$ C) $A \subseteq B$ D) $B = \varnothing$

Find the cardinal number of the set.

242) The numbers in the Venn Diagram below represent cardinalities. 242) _____

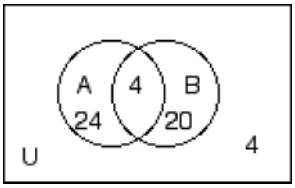


Find $n(A \cup B)$.

A) 52 B) 48 C) 24 D) 4

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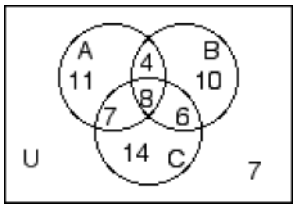
243) The numbers in the Venn Diagram below represent cardinalities. 243) _____



Find n(A ∩ B').

A) 4 B) 28 C) 20 D) 24

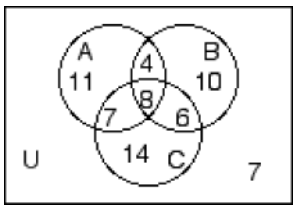
244) The numbers in the Venn Diagram below represent cardinalities. 244) _____



Find n(A' ∩ B' ∩ C)

A) 14 B) 21 C) 27 D) 13

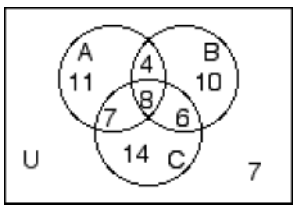
245) The numbers in the Venn Diagram below represent cardinalities. 245) _____



Find n(A ∩ B' ∩ C)

A) 6 B) 11 C) 15 D) 7

246) The numbers in the Venn Diagram below represent cardinalities. 246) _____

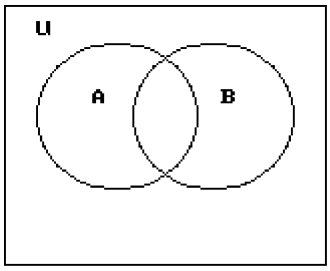


Find n(B ∪ C)

A) 60 B) 14 C) 42 D) 49

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247) Given: $n(U) = 60$
$n(A) = 30$
$n(B) = 16$
$n(A \cap B) = 6$
Find $n(A \cup B)'$. 247) _____

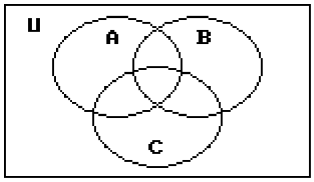


A) 40 B) 46 C) 20 D) 14

248) Given: 248) _____

$n(U) = 213$
$n(A) = 72$
$n(B) = 92$
$n(A \cap B) = 31$
$n(A \cap C) = 34$
$n(A \cap B \cap C) = 16$
$n(A' \cap B \cap C') = 45$
$n(A' \cap B' \cap C') = 54$

Find n(C).

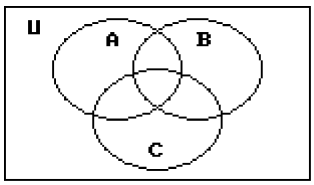


A) 42 B) 26 C) 44 D) 76

249) Given: 249) _____

$n(A) = 60$
$n(B) = 68$
$n(C) = 62$
$n(A \cap B) = 12$
$n(A \cap C) = 14$
$n(B \cap C) = 8$
$n(A \cap B \cap C) = 6$
$n(A' \cap B' \cap C') = 121$

Find n(U)

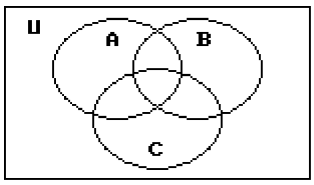


A) 222 B) 162 C) 293 D) 283

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250) Given: $n(A \cup B \cup C) = 165$ 250) _____
$n(A \cap B \cap C) = 22$
$n(A \cap B) = 46$
$n(A \cap C) = 43$
$n(B \cap C) = 41$
$n(A) = 111$
$n(B) = 82$
$n(C) = 80$

Find $n(A' \cap B \cap C)$



A) 20 B) 19 C) 18 D) 21

Find the cardinal number of the indicated set. Use the cardinal number formula.

251) If $n(A) = 4$, $n(B) = 9$ and $n(A \cap B) = 2$, what is $n(A \cup B)$? 251) _____
A) 11 B) 12 C) 10 D) 13

252) If $n(A) = 40$, $n(B) = 117$ and $n(A \cup B) = 137$, what is $n(A \cap B)$? 252) _____
A) 10 B) 60 C) 22 D) 20

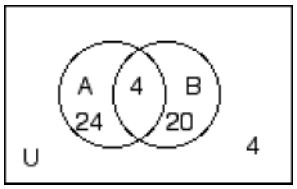
253) If $n(B) = 60$, $n(A \cap B) = 11$, and $n(A \cup B) = 105$, find $n(A)$. 253) _____
A) 56 B) 54 C) 45 D) 58

254) If $n(A) = 25$, $n(A \cup B) = 73$, and $n(A \cap B) = 21$, find $n(B)$. 254) _____
A) 48 B) 70 C) 68 D) 69

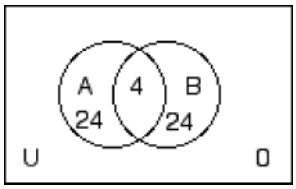
Draw an appropriate Venn diagram and use the given information to fill in the number of elements in each region.

255) $n(U) = 52$, $n(A) = 28$, $n(A \cap B) = 4$, $n(B') = 28$ 255) _____

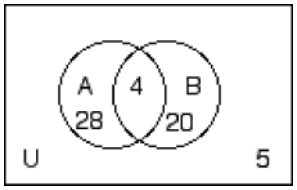
A)



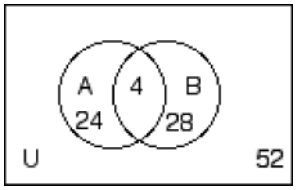
B)



C)



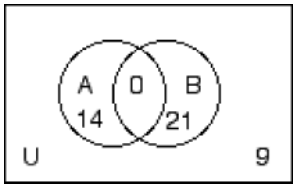
D)



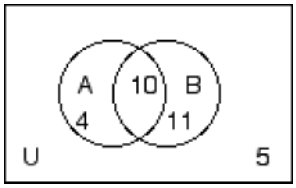
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256) n(A) = 14, n(B) = 21, n(A ∪ B) = 25, n(B′) = 9 256) _____

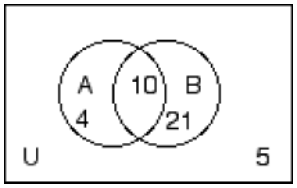
A)



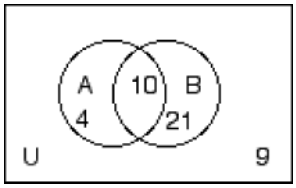
B)



C)

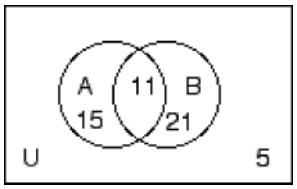


D)

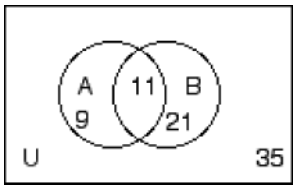


257) n(A′) = 26, n(B) = 32, n(A ∩ B) = 11, n(A′ ∪ B′) = 35 257) _____

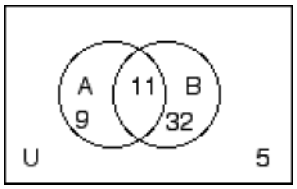
A)



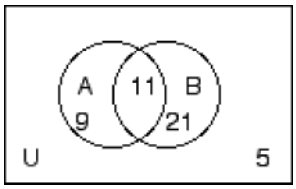
B)



C)

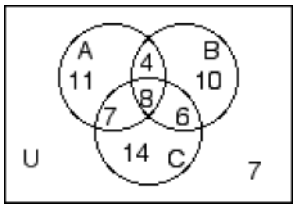


D)

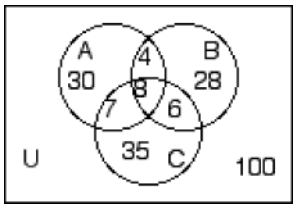


258) n(A) = 30, n(B) = 28, n(C) = 35, n(A ∩ B) = 12, n(A ∩ C) = 15, n(B ∩ C) = 14, n(U) = 67 258) _____

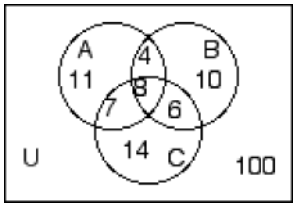
A)



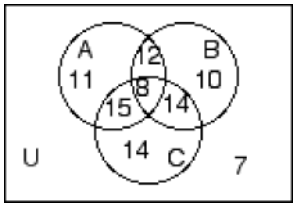
B)



C)



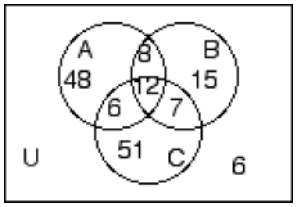
D)



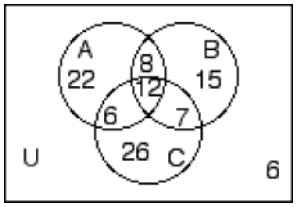
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259) n(A) = 48, n(B′) = 60, n(C) = 51, n(A ∩ B) = 20, n(B ∩ C) = 19, n(A ∩ C) = 18, n(A ∩ B ∩ C) = 12, n(A ∪ B) = 70 259) _____

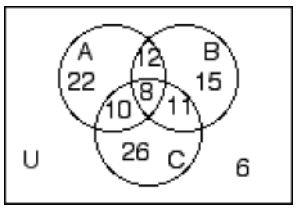
A)



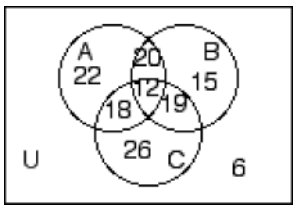
B)



C)

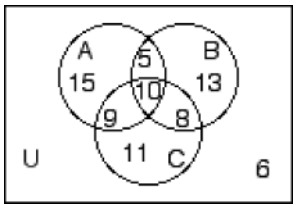


D)

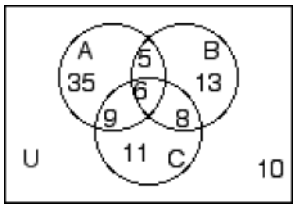


260) n(A) = 35, n(A ∩ B′) = 24, n(A ∩ C) = 15, n(B ∩ C) = 14, n(A′ ∩ B′ ∩ C′) = 10, n(A ∩ B ∩ C) = 6, n(B ∪ C) = 52, n(B ∩ C′) = 18 260) _____

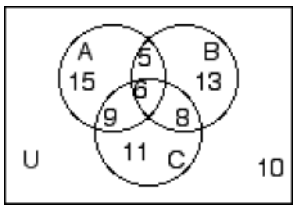
A)



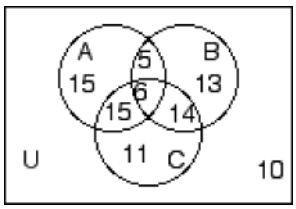
B)



C)



D)



Solve the problem.

261) Mrs. Bollo's second grade class of thirty students conducted a pet ownership survey. Results of the survey indicate that 8 students own a cat, 15 students own a dog, and 5 students own both a cat and a dog. How many of the students surveyed own no cats? 261) _____

A) 27 B) 10 C) 22 D) 15

262) Monticello residents were surveyed concerning their preferences for candidates Moore and Allen in an upcoming election. Of the 800 respondents, 300 support neither Moore nor Allen, 100 support both Moore and Allen, and 250 support only Moore. How many residents support Moore or Allen? 262) _____

A) 100 B) 300 C) 400 D) 500

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263) A local television station sent out questionnaires to determine if viewers would rather see a documentary, an interview show, or reruns of a game show. There were 900 responses with the following results: 263) _____

270 were interested in an interview show and a documentary, but not reruns.
36 were interested in an interview show and reruns but not a documentary.
126 were interested in reruns but not an interview show.
216 were interested in an interview show but not a documentary.
90 were interested in a documentary and reruns.
54 were interested in an interview show and reruns.
72 were interested in none of the three.

How many are interested in exactly one kind of show?

A) 432 B) 412 C) 422 D) 442

264) A survey of 260 families showed that 264) _____

99 had a dog;
76 had a cat;
34 had a dog and a cat;
98 had neither a cat nor a dog nor a parakeet;
8 had a cat, a dog, and a parakeet.

How many had a parakeet only?

A) 26 B) 36 C) 31 D) 21

265) A survey of a group of 113 tourists was taken in St. Louis. The survey showed the following: 265) _____

63 of the tourists plan to visit Gateway Arch;
49 plan to visit the zoo;
10 plan to visit the Art Museum and the zoo, but not the gateway Arch;
12 plan to visit the Art Museum and the Gateway Arch, but not the zoo;
17 plan to visit the Gateway Arch and the zoo, but not the Art Museum;
9 plan to visit the Art Museum, the zoo, and the Gateway Arch;
15 plan to visit none of the three places.

How many plan to visit the Art Museum only?

A) 36 B) 98 C) 49 D) 12

266) In a survey of 280 people, a travel company asked people about places they plan to visit in the next years. The results were as follows: 266) _____

48 plan to visit Europe
58 plan to visit Latin America
34 plan to visit Asia
14 plan to visit Europe and Latin America
12 plan to visit Latin America and Asia
11 plan to visit Europe and Asia
4 plan to visit all three

How many people plan to visit exactly two of these places?

A) 37 B) 29 C) 25 D) 18

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267) A survey of 125 college students was done to find out what elective courses they were taking. Let A = the set of those taking art, B = the set of those taking basketweaving, and C = the set of those taking canoeing. The study revealed the following information. 267) _____

$n(A) = 45$ $n(A \cap B) = 12$
$n(B) = 55$ $n(A \cap C) = 15$
$n(C) = 40$ $n(B \cap C) = 23$
$n(A \cap B \cap C) = 2$

How many students were not taking any of these electives?

A) 33 B) 10 C) 35 D) 43

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1) C
2) C
3) B
4) A
5) D
6) C
7) D
8) A
9) D
10) D
11) B
12) B
13) C
14) A
15) C
16) A
17) A
18) A
19) A
20) D
21) A
22) A
23) A
24) A
25) B
26) B
27) A
28) B
29) A
30) D
31) D
32) A
33) B
34) C
35) A
36) C
37) A
38) B
39) B
40) A
41) A
42) B
43) A
44) B
45) B
46) B
47) B
48) A
49) A
50) B

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51) B
52) B
53) B
54) A
55) B
56) B
57) A
58) B
59) A
60) B
61) B
62) A
63) B
64) A
65) B
66) A
67) B
68) A
69) B
70) A
71) B
72) B
73) B
74) A
75) B
76) B
77) A
78) A
79) A
80) C
81) C
82) B
83) A
84) A
85) A
86) A
87) A
88) A
89) B
90) B
91) A
92) B
93) B
94) B
95) A
96) C
97) B
98) D
99) B
100) A

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101) C
102) A
103) D
104) A
105) A
106) A
107) C
108) D
109) C
110) D
111) D
112) B
113) A
114) D
115) D
116) D
117) C
118) C
119) D
120) B
121) A
122) A
123) D
124) D
125) C
126) C
127) C
128) C
129) B
130) C
131) D
132) A
133) D
134) A
135) C
136) B
137) B
138) D
139) C
140) D
141) D
142) C
143) B
144) A
145) C
146) C
147) D
148) B
149) C
150) A

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151) D
152) C
153) B
154) A
155) D
156) D
157) D
158) C
159) C
160) B
161) B
162) A
163) D
164) D
165) D
166) C
167) C
168) A
169) A
170) B
171) B
172) B
173) B
174) B
175) A
176) A
177) A
178) B
179) A
180) B
181) A
182) B
183) B
184) A
185) B
186) B
187) D
188) B
189) C
190) B
191) D
192) B
193) C
194) B
195) C
196) D
197) D
198) A
199) C
200) B

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201) B
202) C
203) B
204) D
205) D
206) B
207) C
208) A
209) D
210) B
211) B
212) D
213) B
214) C
215) A
216) D
217) A
218) D
219) B
220) B
221) A
222) B
223) D
224) B
225) B
226) A
227) B
228) B
229) A
230) A
231) B
232) B
233) B
234) A
235) A
236) D
237) C
238) A
239) D
240) C
241) B
242) B
243) D
244) A
245) D
246) D
247) C
248) D
249) D
250) B

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251) A
252) D
253) A
254) D
255) A
256) B
257) D
258) A
259) B
260) C
261) C
262) D
263) A
264) D
265) D
266) C
267) A

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